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COMPARISON OF RIGHT VENTRICULAR SPECKLE TRACKING WITH CARDIAC CATHETERIZATION IN CHILDREN WITH PULMONARY HYPERTENSION

ACC Moderated Poster Contributions
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Session Title: Highlighting Right Ventricular Structure, Function, and Physiology in Pulmonary Hypertension
Abstract Category: 30. Pulmonary Hypertension
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Background: Two-dimensional (2D) strain echocardiography is a non-invasive technique that can evaluate subtle aspects of right ventricular mechanics. Correlation of 2D strain data with right heart catheterization in children with primary pulmonary hypertension (PH) has not been previously reported.

Methods: We performed a retrospective review of patients with known idiopathic PH who had a cardiac catheterization and echocardiogram with appropriate images within 30 days. Pulmonary vascular resistance (PVR), right ventricle to femoral artery pressure ratio (RVFA), right ventricle end diastolic pressure, and cardiac index were compared with multiple right ventricular 2D strain parameters (Siemens VVI). All correlations were derived from model r-squares.

Results: Nine patients were analyzed that met the requirements. PVR correlated with global right ventricular peak systolic longitudinal strain, strain rate, and velocity. RVFA correlated with right ventricular longitudinal strain and velocity. Right ventricular end diastolic pressure and cardiac index did not correlate with any measured echocardiographic parameters.

Conclusions: PVR and RVFA correlate well with two-dimensional strain measures of right ventricular mechanics on echocardiography. Deformation of the right ventricle as measured by right ventricular longitudinal strain may be particularly useful. Further evaluation with a larger study is warranted.

Correlation of Speckle Tracking and Catheterization

	RV Longitudinal Velocity		RV Longitudinal Strain		RV Radial Velocity		RV Longitudinal Strain Rate	
	R	p	R	p	R	p	R	p
PVR	0.58	0.02	0.83	0.00	0.56	0.06	0.57	0.01
RV:FA	0.60	0.01	0.88	0.00	NS	NS	NS	NS
*Best Fitting Curve - All correlations showed a curvilinear curve except the linear curve of PVR and RV radial velocity								